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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/887,595	06/22/2001	Yoni Perets	884.429US1	7290

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EXAMINER

BUI, BING Q

ART UNIT	PAPER NUMBER
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2642

DATE MAILED: 11/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/887,595	Applicant(s) PERETS, YONI	
	Examiner Bing Q Bui	Art Unit 2642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11 Sep 2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-24 are pending in the application for examination.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Bergstrom et al (US Pat No. 6,122,309) cited by the Applicant, herein after referred as Bergstrom.

Regarding claim 1, Bergstrom teaches a communication device for use in a wireless communication system 2 comprising:

a receiver front end to receive a communication signal from a wireless channel
(see col. 3, lns 19-61 and col. 19, ln 9-col. 20, ln 22);

a noise classification unit to determine a present noise classification for the wireless channel based on the received communication signal (see col. 3, lns 19-61 and col. 19, ln 9-col. 20, ln 22);

an adjustable noise flattening filter to filter the communication signal received from the wireless channel to generate a filtered signal, said adjustable noise flattening filter having a filter response that is responsive to the noise classification determined by the noise classification unit (see col. 3, Ins 19-61 and col. 19, ln 9-col. 20, ln 22); and

an equalizer to process the filtered signal generated by the adjustable noise flattening filter (see col. 3, Ins 19-61 and col. 19, ln 9-col. 20, ln 22).

Regarding claim 2, Bergstrom teaches the communication device of claim 1, comprising a noise estimation unit to determine a noise estimate for the wireless channel using the received communication signal, wherein said noise classification unit uses said noise estimate to determine said present noise classification (see col. 3, Ins 19-61 and col. 19, ln 9-col. 20, ln 22).

Regarding claim 3, Bergstrom teaches the communication device of claim 2, comprising a channel estimation unit to determine an estimated channel response of the wireless channel using the received communication signal, wherein said noise estimation unit uses the estimated channel response to determine said noise estimate (see col. 3, Ins 19-61 and col. 19, ln 9-col. 20, ln 22).

Regarding claim 4, Bergstrom teaches the communication device of claim 1, wherein said adjustable noise flattening filter includes a plurality of individual filters that each have a different filter response (see col. 3, Ins 19-61 and col. 19, ln 9-col. 20, ln 22).

Regarding claim 5, Bergstrom teaches the communication device of claim 4, wherein said plurality of individual filters each correspond to a different noise

3 classification (see col. 3, lns 19-61 and col. 19, ln 9-col. 20, ln 22).

Regarding claim 6, Bergstrom teaches the communication device of claim 4, wherein said adjustable noise flattening filter includes an input for receiving a signal to be filtered, an output for outputting a filtered signal, and a switch for selectively switching one of said plurality of individual filters into a flow path between said input and said output in response to the noise classification determined by the noise classification unit (see col. 3, lns 19-61 and col. 19, ln 9-col. 20, ln 22).

Regarding claim 7, Bergstrom teaches the communication device of claim 1, wherein said adjustable noise flattening filter includes a single filter having a modifiable 3 filter response (see col. 3, lns 19-61 and col. 19, ln 9-col. 20, ln 22).

Regarding claim 8, Bergstrom teaches a communication device comprising:
means for receiving a communication signal from a wireless communication channel (see col. 3, lns 19-61 and col. 19, ln 9-col. 20, ln 22);

means for estimating a noise spectrum within the wireless communication channel using the communication signal (see col. 3, lns 19-61 and col. 19, ln 9-col. 20, ln 22);

means for selecting a noise flattening filter response based on said noise spectrum estimated by said means for estimating (see col. 3, lns 19-61 and col. 19, ln 9-col. 20, ln 22); and

means for filtering the communication signal using the filter response selected by said means for selecting (see col. 3, lns 19-61 and col. 19, ln 9-col. 20, ln 22).

Regarding claim 9, Bergstrom teaches the communication device of claim 8, wherein said means for estimating a noise spectrum uses an estimated channel response to estimate said noise spectrum (see col. 3, lns 19-61 and col. 19, ln 9-col. 20, ln 22).

Regarding claim 10, Bergstrom teaches the communication device of claim 8, wherein said means for filtering includes a bank of individual filters and a switch for directing said communication signal to one of said individual filters based on a control signal (see col. 3, lns 19-61 and col. 19, ln 9-col. 20, ln 22).

Regarding claim 11, Bergstrom teaches the communication device of claim 8, wherein said means for selecting a noise flattening filter response includes means for calculating filtered noise powers using said noise spectrum estimated by said means for estimating (see col. 3, lns 19-61 and col. 19, ln 9-col. 20, ln 22).

Regarding claim 12, Bergstrom teaches the communication device of claim 8, wherein said means for selecting a noise flattening filter response includes means for selecting one of a finite number of predetermined filter responses based on said noise spectrum estimated by said means for estimating (see col. 3, lns 19-61 and col. 19, ln 9-col. 20, ln 22).

Regarding claim 13, Bergstrom teaches a method for processing a communication signal comprising:

receiving a communication signal from a wireless channel (see col. 3, lns 19-61 and col. 19, ln 9-col. 20, ln 22);

estimating a noise spectrum within said wireless channel using said

Art Unit: 2642

communication signal (see col. 3, Ins 19-61 and col. 19, In 9-col. 20, In 22);

selecting one of a plurality of filter responses to filter said communication
6 signal based on said estimated noise spectrum (see col. 3, Ins 19-61 and col. 19, In 9-
col. 20, In 22); and

filtering said communication signal using said selected filter response to generate
a filtered communication signal having a noise component that is flatter than a noise
component of said communication signal (see col. 3, Ins 19-61 and col. 19, In 9-col. 20,
In 22).

Regarding claim 14, Bergstrom teaches the method of claim 13, wherein:
estimating a noise spectrum includes:

convolving an estimated channel response with data known to be within said
communication signal to generate an estimated signal (see col. 3, Ins 19-61 and col. 19,
In 9-col. 20, In 22); and

subtracting said estimated signal from the received communication signal to
generate said estimated noise spectrum (see col. 3, Ins 19-61 and col. 19, In 9-col. 20,
In 22).

Regarding claim 15, Bergstrom teaches the method of claim 13, wherein
selecting one of a plurality of filter responses includes:

analyzing said estimated noise spectrum to determine a noise
classification for noise within the channel (see col. 3, Ins 19-61 and col. 19, In 9-col. 20,
In 22); and

generating a filter select signal based upon said noise classification (see col. 3, Ins 19-61 and col. 19, In 9-col. 20, In 22).

Regarding claim 16, Bergstrom teaches the method of claim 15, wherein filtering said communication signal includes directing said communication signal to the input of one filter within a bank of filters based on said filter select signal (see col. 3, Ins 19-61 and col. 19, In 9-col. 20, In 22).

Regarding claim 17, Bergstrom teaches the method of claim 13, wherein selecting one of a plurality of filter responses includes choosing a filter response that will most effectively flatten noise within said communication signal (see col. 3, Ins 19-61 and col. 19, In 9-col. 20, In 22).

Regarding claim 18, Bergstrom teaches the method of claim 13, comprising applying said filtered communication signal to the input of an equalizer (see col. 3, Ins 19-61 and col. 19, In 9-col. 20, In 22).

Regarding claim 19, Bergstrom teaches the method of claim 13, wherein said plurality of filter responses includes at least one high pass filter response and at least one low pass filter response (see col. 3, Ins 19-61 and col. 19, In 9-col. 20, In 22).

Regarding claim 20, Bergstrom teaches a computer readable medium having program instructions stored thereon for implementing a method for filtering a communication signal when executed within a digital processing device, said method comprising:

Art Unit: 2642

analyzing a communication signal received from a wireless communication channel to determine a class of noise in the wireless communication channel (see col. 3, lns 19-61 and col. 19, ln 9-col. 20, ln 22);

selecting one of a plurality of filter responses to filter said communication signal based on said class of noise (see col. 3, lns 19-61 and col. 19, ln 9-col. 20, ln 22); and filtering said communication signal using said selected filter response (see col. 3, lns 19-61 and col. 19, ln 9-col. 20, ln 22).

Regarding claim 21, Bergstrom teaches the computer readable medium of claim 20, wherein analyzing a communication signal includes estimating a noise spectrum within said channel (see col. 3, lns 19-61 and col. 19, ln 9-col. 20, ln 22).

Regarding claim 22, Bergstrom teaches the computer readable medium of claim 21, wherein analyzing a communication signal includes calculating filtered noise powers using said estimated noise spectrum (see col. 3, lns 19-61 and col. 19, ln 9-col. 20, ln 22).

Regarding claim 23, Bergstrom teaches the computer readable medium of claim 22, wherein: analyzing a communication signal includes comparing said filtered noise powers to one another (see col. 3, lns 19-61 and col. 19, ln 9-col. 20, ln 22).

Regarding claim 24, Bergstrom teaches the computer readable medium of claim 20, wherein selecting one of a plurality of filter responses includes choosing a filterresponse that will most effectively flatten noise within said communication signal (see col. 3, lns 19-61 and col. 19, ln 9-col. 20, ln 22).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art in general:

U.S. Pat. No. 4,628,529

U.S. Pat. No. 6,032,114

U.S. Pat. No. 6,047,171

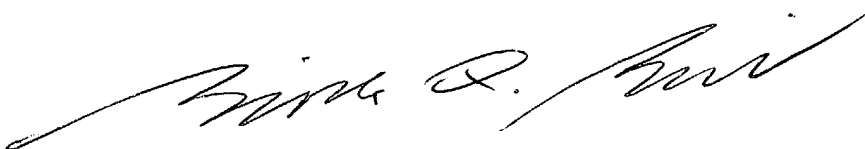
U.S. Pat. No. 6,061,649

U.S. Pat. No. 6,477,489

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bing Bui whose telephone number is (703) 308-5858. The examiner can normally be reached on Monday through Thursday from 7:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar, can be reached on (703) 305-4731. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306 and for formal communications intended for entry (please label the response ☐EXPEDITED PROCEDURE☐) or for informal or draft communications not intended for entry (please label the response "PROPOSED" or "DRAFT").

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.



BING Q. BUI
PRIMARY EXAMINER